



US006081491A

**United States Patent** [19][11] **Patent Number:** **6,081,491****Ota et al.**[45] **Date of Patent:** **Jun. 27, 2000**[54] **OPTICAL DISK VIBRATION SENSING AND REPRODUCING DEVICE**[56] **References Cited****U.S. PATENT DOCUMENTS**

[75] Inventors: Takumi Ota; Akihiro Kishishita;  
Kiyoshi Kodani; Masayuki  
Hayashida, all of Tottori, Japan

4,530,018 7/1985 Hoshino et al. .  
4,750,059 6/1988 Syracuse .  
5,434,829 7/1995 Maeda et al. .... 369/54 X  
5,636,193 6/1997 Ohmi .  
5,706,265 1/1998 Bang ..... 369/47 X

[73] Assignees: Sanyo Electric Co., Ltd., Osaka-fu;  
Tottori Sanyo Electric Co., Ltd.,  
Tottori-ken, both of Japan

**FOREIGN PATENT DOCUMENTS**

07182796 7/1995 Japan .

[21] Appl. No.: **09/378,657***Primary Examiner*—Paul W. Huber[22] Filed: **Aug. 20, 1999***Attorney, Agent, or Firm*—Akin, Gump, Strauss, Hauer & Feld, L.L.P.**Related U.S. Application Data**

[63] Continuation of application No. 09/162,988, Sep. 29, 1998,  
Pat. No. 6,009,053, which is a continuation of application  
No. 08/855,252, May 13, 1997, Pat. No. 5,886,966.

[57] **ABSTRACT**

In an optical disk reproducing device capable of rotating an optical disk at a selected one of a plurality of preset linear velocities, vibration or shock of the device is detected during rotation of the disk, and the linear velocity of the disk is determined based on the result of the detection of the vibration or shock to restrain the vibration and shock within a permissible range. A limit rotational velocity above which the vibration or shock is excessive may be determined during a test conducted each time a disk is inserted, and the linear velocity of the disk during reproduction may be determined such that the rotational velocity does not exceed the limit rotational velocity.

**Foreign Application Priority Data**

May 16, 1996 [JP] Japan ..... 8-121797  
Aug. 29, 1996 [JP] Japan ..... 8-228571

[51] Int. Cl.<sup>7</sup> ..... **G11B 3/90**[52] U.S. Cl. .... **369/54; 369/44.32**

[58] Field of Search ..... 369/32, 33, 47,  
369/48, 50, 53, 54, 58, 44.27, 44.28, 44.29,  
44.32; 360/73.03

**11 Claims, 3 Drawing Sheets**